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Izvorni znanstveni članak

Soil Compaction on Forest Soils from Different Kinds of Tires and tracks and Possibility of Accurate Estimate

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Sažetak
An 8-WD forwarder loaded with 9,520 kg of timber, and fitted with low or high tire pressures, or tires rounded with tracks, was repeatedly driven on soil for 1, 8 and 24 passes to investigate mechanistic influences on soil compaction. Soil compaction occurred during the early passes, and heavy compaction occurred after 8 passes. High pressure tires caused heavy compaction in the deeper soil layer zones. The compacted zone for a loaded forwarder with tracks was shallow in depth and had the lowest degree of compaction. Linear regression between contact pressure and average depth of ruts after 24 passes was derived. An increase in contact pressure of 100 kPa caused a decrease of 5.7% in soil porosity at 10–15 cm depth after 24 passes. Maximum increment of cone index of 85 kPa, which occurred at depths of 14 to 28 cm, meant a decrease of 1% soil porosity between depths of 10-15 cm. Additionally, ruts of 10 cm in depth decreased porosity by 7%. Tracks kept original porosity with lowest compaction and should therefore be useful for preventing soil compaction.

Ključne riječi
soil compaction; tracks; depth of ruts; porosity

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